



SCR ELEKTRONIKS

Leading Manufacturer of Industrial Electronic Products since 1975

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SURGE COMPARISON TEST

INTRODUCTION :



SCR Elektroniks Surge Comparison Tester is an advanced electronic instrument which is used to test various types of electrical windings and electric machines to know if there is any fault or insulation defect. A successful test ensures that the quality of the winding or the machine is good. The application of the test is simple and the test results are in the form of wavepatterns that can be understood easily to make the decisions. The testing procedure is also very quick and normally a test does not take more than a few seconds.

The Surge Tester by virtue of its principle of working and advanced technology scans through the entire insulation system of the winding under test and gives instantaneous indications of faults, if any, which could exist in any winding system :

For example :

Inter-turn shorts
Coil to coil shorts
Phase to phase shorts
Short to ground
Intermittent shorts
Wrong connections
Unbalanced windings/wrong number of turns
Opens etc.

The surge tester also helps in exposing potential faults as higher voltages can be applied to the windings momentarily without in anyway damaging the insulation system of the windings under test. The surge testing technique is basically a non-destructive testing when used judiciously.

Generally, different faults produce different types of deviations in the waveform thus giving direct indications of faults. However, sometimes it may become necessary to analyse the waveforms in detail to know the exact nature of faults. Surge Tester helps to do it precisely.

APPLICATIONS :

The test could be applied to any type of winding or machine e.g.

Single Phase or Three Phase Windings, AC/DC Windings, Stators windings, Armatures, field Coils, contactor / relay coils etc. The SCR Elektroniks Surge Tester finds applications in every industry concerned with electrical windings in any way :

ELECTRIC MOTOR MANUFACTURING INDUSTRY (AC / DC)

PUMPS-INCLUDING SUBMERSIBLE PUMPS MFG. INDUSTRY

HERMETIC COMPRESSORS MFG. AND USERS INDUSTRY

FANS MANUFACTURING INDUSTRY

CONTACTORS COILS MFG. INDUSTRY

RAILWAY'S REWINDING AND REPAIR WORK SHOPS - INCLUDING

COMMERCIAL REPAIR WORKSHOP FOR ELECTRIC MACHINES

AIR-CONDITIONING AND REFRIGERATION INDUSTRIES

WASHING MACHINES MFG. INDUSTRY

TRANSFORMERS MFG. INDUSTRY

ELECTRICAL MAINTENANCE WORKSHOPS OF LARGE PROCESS INDUSTRIES

OPERATING PRINCIPLE

The Surge Tester uses the Comparison Technique to detect faults in the windings. Two identical High Voltage Capacitors of a certain value are electronically discharged through the two windings (Inductances) under comparison test to produce voltage decay waveforms. These waveforms are displayed on its screen. If the two windings are exactly similar in all respect, each of them will produce a waveform which is exactly similar to that of the other. Visually, the two waveforms will perfectly match or superimpose each other. Thus, A Single waveform will be seen on the screen. In case the two windings are not same due to any reason, their waveforms will also be of different type. Thus, two separate waveforms will appear on the screen. The difference in the wave patterns is directly proportional to the difference in the winding under test.

This phenomena of discharging the capacitor through the windings produces High Voltage Surges /Pulses of very short duration.

Inorder to sustain the waveforms on the screen for comprehensive observations, This charging and discharging of the High Voltage Capacitors or Generation of High Voltage Surges/Pulses is done at a very repaid rate so that to an observer the waveforms appear to be constantly present on the screen till the test is in progress.

Since the instrument is very sensitive to any change in the inductance, even minor faults or dissimilarities between the windings under test produce significant difference in the waveforms which could be easily observed.
